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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,219	02/19/2002	Robert Hughes Jones	8036-1004	6866
7590	10/14/2003		EXAMINER	
Lee, Mann, Smith, McWilliams, Sweeney & Ohlson P.O. Box 2786 Chicago, IL 60690-2786			LOBO, IAN J	
			ART UNIT	PAPER NUMBER
			3662	

DATE MAILED: 10/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

SW

Offic Action Summary	Applicati n N .	licant(s)
	10/079,219	JONES, ROBERT HUGHES
Examin r	Art Unit	
Ian J. Lobo	3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Pri d f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 17 July 2003.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disp sition of Claims

4) Claim(s) 1 and 3-6 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) 5 and 6 is/are allowed.

6) Claim(s) 1,3 and 4 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ .
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gragnolati et al ('872) or the UK application to Halladay et al ('337) when taken in view of Grice ('615).

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 3 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. .

It is unclear from the specification what the “least squares basis” is that is utilized to indicate the motion. Applicant is requested to point out where in the specification the specific “least squares basis” for determining motion is described in such a manner as to enable one of ordinary skill in the art to make and/or use the invention.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gragnolati et al ('872) or the UK application to Halladay et al ('337) when taken in view of Judson et al ('269).

As pointed out in the previous office action (paper #10), Halladay et al and Gragnolati et al each discloses a method of using a seismic detector including four sensors to detect and measure seismic activity. The seismic activity detected by the four sensors is what is claimed in claim 3 as the “indication of motion in three dimensions”.

The difference between claim 3 and the Halladay et al or Gragnolati et al references is the claim specifies the use of “least squares basis” to indicate the motion. Neither Halladay et al nor Gragnolati et al are so specific.

However, as noted by Judson et al on col. 10, lines 10+, least squares methods for dealing with redundant equations and data is a well known aspect of seismic data processing. In as much as the outputs of the four sensors of Halladay et al and Gragnolati et al are forms of redundant equations, their solutions, using a least squares basis exemplified by Judson et al, would have been an obvious expedient to one of ordinary skill in the art.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gragnolati et al ('872) or the UK application to Halladay et al ('337) when taken in view Tokimatsu et al ('398).

As pointed out in the previous office action (paper #10), Halladay et al and Gragnolati et al each discloses a method of using a seismic detector including four sensors to detect and measure seismic activity.

The difference between claim 4 and the Halladay et al or Gragnolati et al patents is the claim specifies checking that the outputs of the sensors are coherent.

The patent to Tokimatsu et al discloses (col. 6, lines 33-51) that subjecting data from plural sensors to spectrum analysis to determine coherence ... phase difference between plural sensors is well known. To have modified either Halladay et al or Gragnolati et al to include coherence as a test parameter so as to provide a more reliable system.

Allowable Subject Matter

7. Claims 5 and 6 are allowed.

Response to Arguments

8. Applicant's arguments filed July 17, 2003, with respect to claim 1, have been fully considered but they are not persuasive. Applicants argue that Grice's patent is irrelevant because Grice teaches a method to test the sensors in a test circuit during a

manufacturing stage and not during actual seismic activity. It is argued however that, as stated on col. 1, line 29 – col. 2, line 8, Grice teaches the need for and advantages of testing for polarity of multiple sensors within an array. The Gragnolati et al and Halladay et al references disclose using plural sensors. It is irrelevant whether the sensors are hydrophones or seismic sensors since hydrophones and geophones or seismic sensors are within the same class of acoustic detectors, and it is further irrelevant whether the testing is done during a manufacturing stage or during a seismic detection and measurement stage since what is important is the teaching that polarity testing is a needed requirement and combining the outputs of the sensors, as taught by Grice, is an advantageous feature.

Applicant's arguments with respect to claims 3 and 4 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian J. Lobo whose telephone number is (703) 306-4161. The examiner can normally be reached on Monday - Friday, 6:30 - 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (703) 306-4171. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-4180.



Ian J. Lobo
Primary Examiner
Art Unit 3662

ijl